Sheet 1. 2 Sheets.

J. Thomas.

Floating Dry Dock.

No. 522. Patented Dec. 20, 1837.

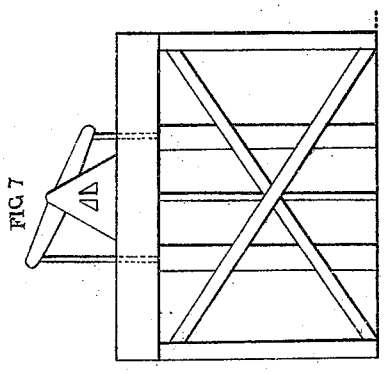

FIG. 7

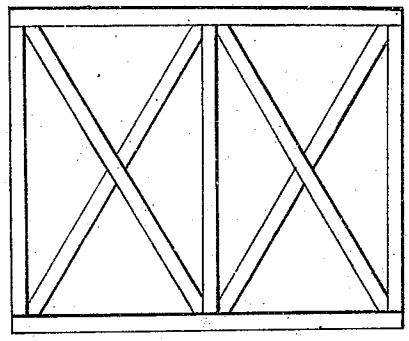

FIG. 5.

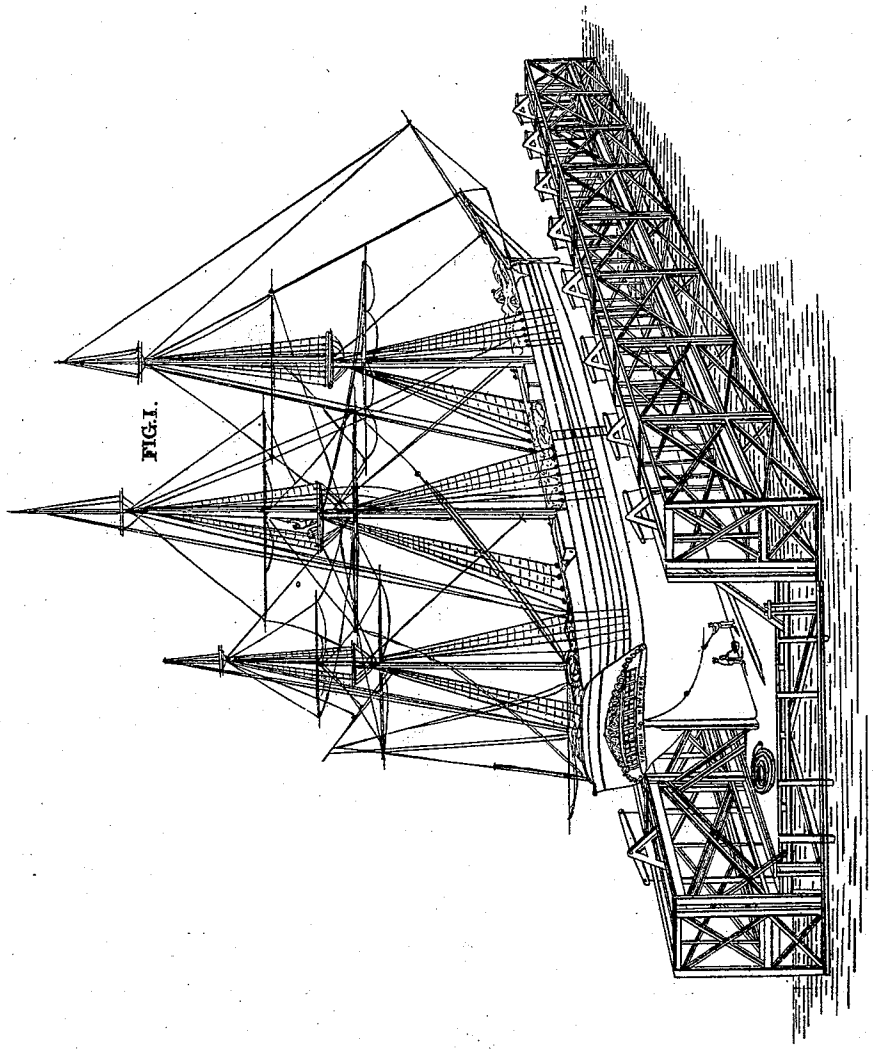

FIG. 1.

Sheet 2. 2 Sheets.

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FIG. 4.

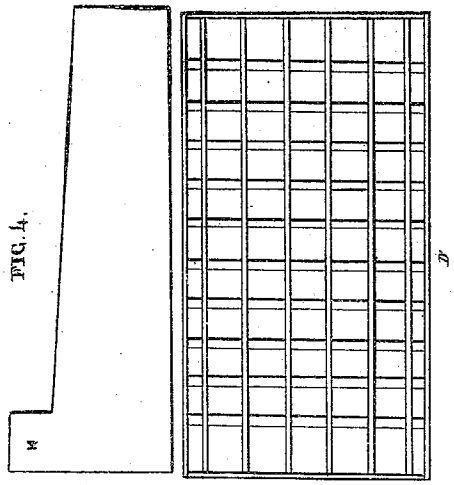


FIG. 6.

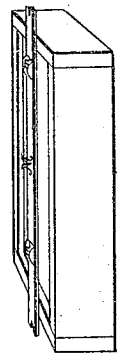


FIG. 3.

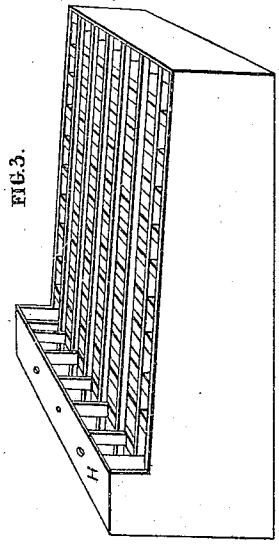
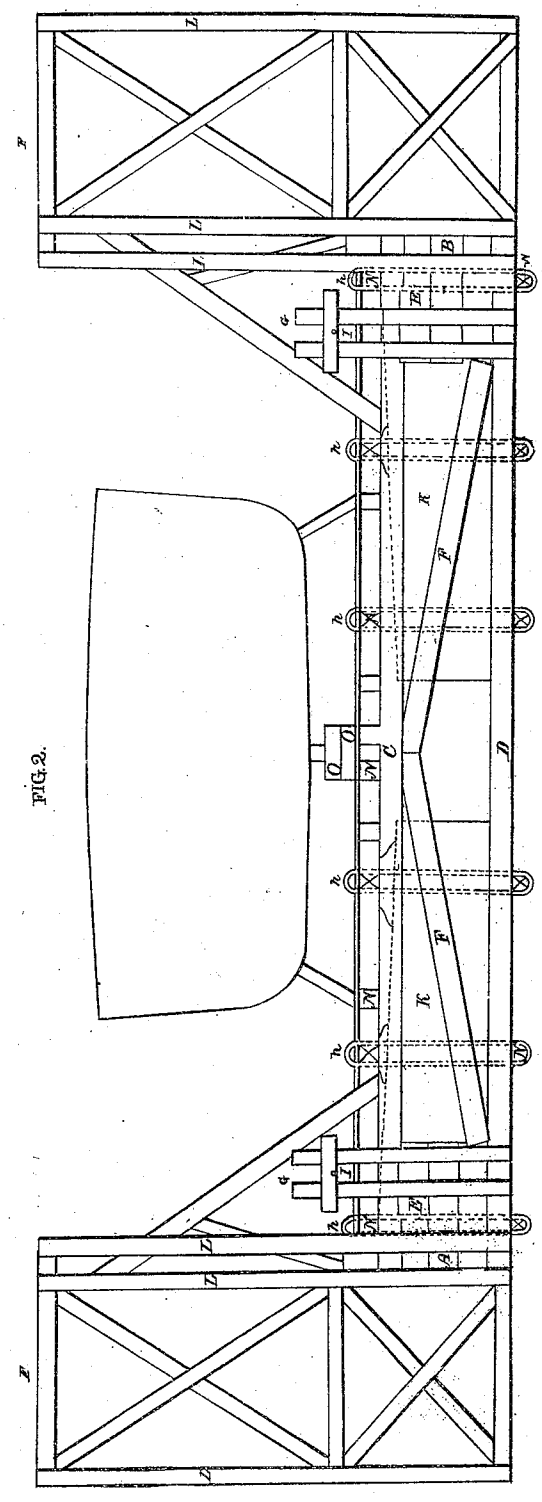


FIG. 2.



UNITED STATES PATENT OFFICE.

JOHN THOMAS, OF NEW YORK, N. Y.

FLOATING DRY-DOCK.

Specification forming part of Letters Patent No. 522, dated December 20, 1837; Reissued May 1, 1849, No. 135.

To all whom it may concern:

Be it known that I, JOHN THOMAS, naval architect, of the city of New York, State of New York, have invented a new and Improved Floating Dry-Dock Applicable to the Repairing of Ships, Steamboats, and other Vessels; and I do hereby declare that the following is a full and exact description thereof.

My floating dry dock, when in use, is to consist of such number of separate sections, or floating platforms as it may be necessary to connect together for the patricular purpose for which it is to be used; that is to say, as many as may be required to sustain the weight of the vessel which is to be repaired.

The perspective view, Figure 1, in the accompanying drawings exhibits a vessel upon one of my dry docks, consisting of eight sections, or combined floating platforms. As each of these is precisely similar in its construction to the others with which it is to be connected, a description of one, and of the mode of combining any number of them together, will serve for the whole. Each section consists essentially of two floats, or hollow rectangular trunks united permanently together by strong timbers, and a floor, or deck, and of two smaller trunks, or floats, which are not permanent, but movable, in a way to be presently described; and which are employed for the purpose of giving additional buoyancy to the dock, to afford the means of regulating that buoyancy in any particular part where it may be required, and also to insure stability. The respective sections may, of course, be varied in their dimensions, but the size which I shall assume for the purpose of description will furnish the proportions of the respective parts to each other, and serve to aid the judgment in building them of other sizes. Fig. 2, represents a side view of one of the sections, which sections are sixty feet long, from A to B, and are seventeen feet wide on the floor. The framework on each side of the sections is similar to that represented. C, is the upper, and D, the lower string pieces, which are sixty feet in length, sixteen inches deep, and eleven inches thick. These are joined to buttresses at each end, composed of timber of the same size, with the string pieces and about eight feet long. The string pieces and buttresses are well as the other parts of the frame work are to be strongly united together by dowels and screw-bolts. The buttresses are to be lined transversely, with four inch oak plank, or other strong timber, as shown at E E; when these have been properly secured the middle is to be wedged up so as to give a rise from a straight line, of at least three inches. F, F, are two truss pieces, closely fitted and well secured, as they are to sustain the thrust of the truss frame; they are of the same size with the string pieces. The two sides of each section are connected together by beams N, N, N, crossing both above and below, from one to the other; and upon the upper beams the floor, or deck, is laid; the beams are not only to be firmly bolted in their places, but they are also to be connected by strong links of iron shown at *h*, *h*, *h*. The four links nearest to each end of the frame, I make of inch and three quarters iron; the four next of inch and five eighths, and the four nearest the middle of inch and a half. These links have to sustain the whole lifting power applied, and consequently the whole weight of the vessel upon the dock. Great care must be taken, therefore to wedge and chock them in the most perfect manner. The keel blocks O, O, rest upon the two center beams of the sections and at about the distance of three feet within their sides.

The two floats, or hollow trunks, which are to give buoyancy to the section, are placed one at each end; their sides are marked K, K, and the space which they occupy is represented by the dotted lines. These floats are each twenty six feet long, fourteen feet wide, with a medium depth of seven feet. They are made water tight, and are strongly braced throughout. Fig. 3, gives a perspective view of one of these floats, the top planking being removed, to show the crossing timbers upon which it rests. It will be seen that it is deeper at one end than at the other; this is for the purpose of giving to the top such an inclination as shall allow the air to escape readily when the floats are being filled with water. Fig. 4, is a view of the top, and of one side of one of these trunks. By the aid of floats of this size, it will be found upon calculation, that a weight of about one hundred and seventy tons, will be sustained by them, when they are exhausted of water, calculating each cubic foot at sixty two pounds avoirdupois. Upon the projecting parts H′,

H′, of these trunks the pumps are placed, by which they are to be exhausted of their water, and they also receive the lower ends of the tubes by which they are to be supplied with air.

L, L, L, are stanchions of 8 by 10 scantling, twenty five feet in length from bottom to top, braced at the ends as shown in the drawings, and having similar braces at their sides, one of which side braces is shown at Fig. 5. There are two other short stanchions G, G, eleven inches apart placed near each end of each section the stanchions being connected by a cross piece near their upper ends, leaving a space of eleven inches between them and the deck. Through the square opening thus formed, pieces of strong timber, ten by five inches pass, to connect the respective sections together; these timbers must be of such length as to extend across one section, and to the middle of that adjoining it. The space thus occupied by the connecting timbers is marked I.

The frames formed by the stanchions L, L, L, and their appendages are to receive the smaller trunks or floats, intended to regulate the dock, and to insure its stability. One of these floats is shown at Fig. 6. They are each about seventeen feet long, eight feet wide, and three feet deep, each having a capacity of about eleven tons. They are made air tight, without any opening into them, excepting it may be for freeing them of any accidental leakage, as they are never to be filled with water, but are constantly to retain their flotant property. They are made to slide up and down within the frames formed by the stanchions L, L, L; and they have a beam M, M, extending along their tops, which beam is notched at each end to receive an iron bar, or tongue within the side frames, which serves to guide them up and down; this bar or tongue has holes through it to receive bolts, by which the floats are to be retained in their places, when raised, or forced down. The beams M, have blocks *m*, *m*, on them, which serve as fulcra upon which levers may be made to act, by which these floats may be depressed. It will be readily perceived that the distance of these floats from the center of the dock, and their combined and separate buoyancy, will give a most efficient control over the whole dock, and its load, under circumstances which would render all other floating docks insecure.

Fig. 7, shows an elevation of a part of the frame work, which supports the pumps by which the main trunks or floats are to be exhausted of their water, and the tubes for the supply of air. These pumps may be worked in any convenient way and have nothing peculiar in their construction or arrangement.

Should it be desired to extend the sections, so as to increase the length of the dock without adding to the number of sections, this may be effected by means of the connecting pieces passing through the spaces I, I; these connecting pieces, and the decks also, are to have both holes through them, at a convenient distance apart, say two feet, which will allow of the respective sections being retained at any desired distance from each other. When several sections are placed together, the width of the sections constitute the length of the dock.

When this dock is to be used the vessel to be placed upon it must have a depth of water below its keel equal, at least, to the height of the dock, from the bottom of it to the floor. To sink the dock, the main trunks are allowed to fill with water, and ballast is then put upon the floor sufficient to effect that object, and consequently allow the vessel to be placed upon it, and to be secured by shoring, in its proper position upon the middle of the dock, with its keel over the keel blocks. The pumping of the water out of the main trunks is then to be commenced, and as this goes on, and the dock rises, the smaller or end trunks, are to be forced down, the larger floats ascending, and the smaller descending simultaneously. It is of course, necessary to admit air into the main trunks as the water is pumped out, and this is effected by allowing air tubes to pass down into them, in a manner so obvious as not to require description.

Having thus fully described the construction of my floating dry dock, and the manner of using the same, I do hereby declare that I do not claim as of my invention, either of the separate parts thereof, taken individually; nor do I claim the application of floats, or trunks, from which water is to be pumped for the purpose of lifting a vessel for repairs, this having frequently been done; but

What I do claim, is—

The making and using of the smaller, or end trunks, or floats, which are to be used in combination with the main floats, and are not to admit water, but are to be forced down as the dock, with its load rises, the whole combined and operating substantially in the manner and for the purposes herein set forth.

J. THOMAS.

Witnesses:
JOHN D. CLARK,
CHRISTOPHER CUMMINGS.

[FIRST PRINTED 1914.]